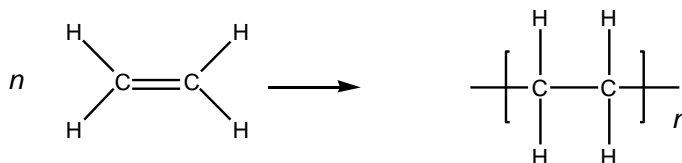


Polythene: Questions

1. The equation for the polymerisation of ethene is



(a) What is the mass of 1 mole (the formula mass) of ethene? (Relative atomic masses: H=1, C=12)

_____ [1]

(b) The average mass of 1 mole of a sample of poly(ethene) is 140,000 g.

(i) Why is the *average* mass of 1 mole of poly(ethene) given?

_____ [1]

(ii) On average, how many ethene molecules are there in each poly(ethene) chain?

_____ [2]

(c) If the temperature and pressure are increased, the average chain length is altered. Suggest how the average chain length is altered. Explain your answer.

Use your knowledge of particles in your answer.

_____ [3]

- (d) The table gives some information about low density poly(ethene) and high density poly(ethene)

	Low density poly(ethene)	High density poly(ethene)
Density	0.92-0.94 g/cm ³	0.94-0.96 g/cm ³
Hardness	Soft	Hard
Manufacture	High pressure and catalyst	Low pressure and catalyst
Chain structure	Many branches in chains	Few branches in chains

In which type of poly(ethene) are the chains more tightly packed? Explain your choice giving two reasons.

[2]